



January 23, 2017

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Re: RM-11778, *Fixed Wireless Communications Coalition, Inc., Request for Modified Coordination Procedures in Bands Shared Between the Fixed Service and the Fixed Satellite Service*

Dear Ms. Dortch:

Lockard & White (L&W) is writing in support of the petition filed by the Fixed Wireless Communications Coalition to improve parity in frequency coordination in the bands shared between the Fixed Service (FS) and the Fixed Satellite Service (FSS).

L&W is a duly qualified Telecommunications Engineering and Project Management firm with a 32-year history of designing and implementing land mobile radio, SCADA, RF telemetry, microwave and backhaul networks. L&W is a nationwide, Texas-based corporation headquartered in College Station, Texas, employing engineers and consultants specializing in telecommunications network system design. Since its inception in 1984, L&W has provided services to hundreds of clients in the oil & gas, electric utility, public safety and transportation sectors.

Many of the projects L&W has been involved in require high-level system design and feasibility studies. Whenever these projects involve point-to-point microwave, a major component of that design is the availability of RF spectrum suitable to meet the client's needs. Many of our electric utility and oil field customers specify high availability networks that are typically in rural areas and span hundreds of miles. The pipelines, production fields, and utility transmission lines depend on close monitoring and control. This control is extremely difficult to achieve without robust networks to connect with the appropriate control centers. Lack of this close monitoring and control can greatly increase the risk of major utility outages and pipeline spills.

Without the option of providing their own backhaul networks, this critical infrastructure sometimes depends on the common carriers that serve those remote areas. As public entities, public network providers do not guarantee levels of service other than on a total system, average basis. In order to control their own service levels, our customers frequently choose to provide their own networks, a critical component of which is the chosen frequency band. In order to maximize network availability, the frequency bands of choice are typically narrowed down to licensed, 6 GHz and below. Paths less than about 10 miles in length typically use the 11, 18, and 23 GHz bands, which aren't addressed by the petition. Satellite-provided services are generally ruled out due to

low network latency and high bandwidth availability requirements at a reasonable cost. L&W engineers have recommended and provisioned FSS services when this transport media best serves the client's needs.

For the electric utility industry, the Commission has not provided spectrum specifically dedicated to the Smart Grid, but Smart Grid applications are both numerous and growing using a combination of licensed and unlicensed spectrum. In addition, the Internet of Things (IoT) applications such as Street Light and Traffic Light monitoring/control are rapidly growing nationwide. These networks require wireless spectrum, and often require FSS backhaul. Expanding the length and quality of microwave paths by using the 3.7 GHz band has the potential to support growth in both Smart Grid and IoT applications.

Considering the path lengths achievable at 3.7 GHz, a major beneficiary is likely be small rural communities more effectively provided IoT services requiring access to the network monitoring facilities of a nearby Smart Grid operator.

While both FSS and FS providers have anecdotal evidence of instances where their clients have been harmed/benefited by the current joint use rules, the current practice should be analyzed against the following FCC strategic directions:

- Promote the efficient use of spectrum that benefits the most users.
- Respect for the public interest.
- Honor the needs of incumbent users

Reserving full-arc, full-band protection for the benefit of FSS providers is spectrum hoarding, and in most cases there is not a compelling public interest to allow it. Placing an unlimited hold on unused spectrum is not in the public interest and the Commission has a long history of working against that practice. Technology has helped make it practical to share the frequencies without causing harm to incumbents or newly authorized users.

Almost all incumbents in almost all services can make an "economic argument" in support of their present spectrum strategy. However, the Commission has generally not recognized these arguments and on this we agree with the Commission.

Certain uses and applications are, and continue to be in the public interest

- FS, particularly for Critical Infrastructure and Public Safety
- FSS
- Emerging technologies

Precedent exists for promoting efficient spectrum use by eliminating hoarding.

Examples include:

- Redefinition of "growth channels" in the FS
- Build out requirements in the FS and others (such as LMR), where both Part 101 and Part 90 users are required to put a licensed FS path/station in service within a certain period or else forfeit the license.

In general, the FSS public interest arguments for full-arc, full-band protection include - maintaining competition among satellite capacity suppliers and providing backup alternatives during sun outage periods, where the decision is made by the ground network operator. Otherwise, the FSS argument for “reserving” channels for unknown future requirements is the same as the FS which is generally highly restricted or not allowed due to a lack of available, non-interfering frequencies in the band. Provision must remain for backup capacity to be provided when a network client loses access to a satellite transponder when they have paid for a fully protected service. Backup capacity should be continually justified and renewed on a periodic basis as a function of changing operational requirements; not in perpetuity.

We encourage the Commission to no longer allow the blanket licensing of full-band, full-arc FSS. We believe that specific worthwhile exceptions, specifically fully-protected service and teleports, can be addressed through the current waiver process. Beyond that, we envision the FSS having the ability to “reserve” spectrum in the same manner as the FS does today (through repeated Prior Coordination Notice and First Refusal).

It is also our suggestion that the definition of “Substantial Service” based on population density be expanded to include alternative metrics that reflect more realistic use of the spectrum by Utilities and Energy Companies. These could be addressed by any number of organizations from SGIP to NSMA.

We encourage the Commission to consider new uses for this spectrum judiciously, encouraging the use of technology to promote more efficient spectrum use, while respecting incumbents and the public interest of their use.

In light of the above, we encourage the FCC to issue a Notice of Proposed Rulemaking based on the FWCC’s petition.

Respectfully submitted,

A handwritten signature in dark ink, reading "Marcus J. Lockard". The signature is fluid and cursive, with the first name "Marcus" being the most prominent part.

Marcus J. Lockard, PE
Founder